

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

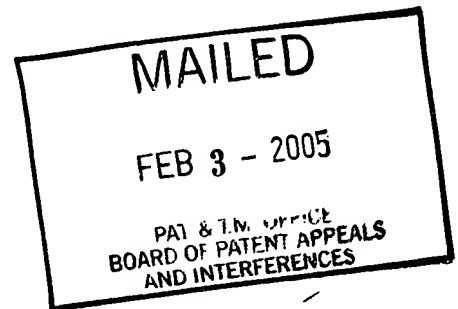
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NILO FAGIOLINI,
GUY DEPELSENAIRE,
and PASCAL BERTEAU

Appeal No. 2004-2028
Application 09/423,746

HEARD: JANUARY 12, 2005



Before PAK, OWENS, and DELMENDO, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1, 2, 4 through 10, 12 and 13, which are all of the claims pending in the above-identified application.

APPEALED SUBJECT MATTER

Claims 1 and 13 are representative of the subject matter on appeal and read as follows:

1. Solid pulverulent reactive composition for the purification of a gas, comprising at least 90% by weight of sodium bicarbonate and a caking inhibitor for sodium bicarbonate and being devoid of silica, said inhibitor comprising lignite coke and/or a magnesium compound selected from the group consisting of magnesium oxide, magnesium hydroxide, mixtures of magnesium oxide and magnesium hydroxide and magnesium hydroxycarbonate, wherein said composition exhibiting a mean particle size of less than 50 μm and a particle size slope of less than 5 and wherein said inhibitor is present in an amount by weight of greater than 0.5% of the weight of sodium bicarbonate.

13. The composition of Claim 1 wherein the particle size slope is defined by σ , wherein

$$\sigma = \frac{D_{90} - D_{10}}{D_{50}}$$

wherein D_{90} represents the diameter at which 90% of the particles of the reactive composition (expressed by weight) have a diameter of less than D_{90} ;

wherein D_{50} represents the diameter at which 50% of the particles of the reactive composition (expressed by weight) have a diameter of less than D_{50} ; and

wherein D_{10} represents the diameter at which 10% of the particles of the reactive composition (expressed by weight) have a diameter of less than D_{10} .

REFERENCE

The examiner relies on the following references:

Fagiolini (Fagiolini '567)	US 6,171,567 B1	Jan. 9, 2001 (Filed Sep. 6, 1996)
Regler et al. (Regler) (Published German Patent)	4,100,645 A1	Jul. 16, 1992
Fagiolini (Fagiolini '835) (Published International Patent Application)	WO 95/19835	Jul. 27, 1995

REJECTION

The claims on appeal are rejected as follows¹:

- I) Claims 1, 2, 4 through 10, 12 and 13 under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1 through 14 of Fagiolini '567 in view of Regler²; and
- II) Claims 1, 2, 4 through 10, 12 and 13 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Regler and Fagiolini '835³.

¹ The examiner has withdrawn the Section 112 rejection of claim 13 at page 4 of the Answer.

² Our reference to this published German Patent is to the corresponding English translation of record.

³ Our reference to this published International Application is to the corresponding English (continued...)

OPINION

We have carefully reviewed the claims, specification and prior art, including all of the evidence and the arguments advanced by both the examiner and the appellants in support of their respective positions. This review has led us to conclude that the examiner's obviousness-type double patenting and Section 103 rejections are well founded. Accordingly, we affirm the examiner's decision rejecting all of the claims on appeal for the factual findings and conclusions set forth in the Answer and below.

Obviousness-Type Double Patenting⁴

To prevent unjustified extension of a patent right beyond statutory limit, the doctrine of obviousness-type double patenting requires rejection of application claims to subject matter different, but not patentably distinct from the subject matter claimed in a commonly owned prior patent. *In re Braat*, 937 F.2d 589, 592, 19 USPQ2d 1289, 1291-92 (Fed. Cir. 1991). The

³(...continued)
translation of record.

⁴ At pages 5 and 6 of the Supplemental Brief, appellants state that "[c]laim 13 is separately patentable from the remaining claims..." However, the appellants do not separately argue the limitation of claim 13 in the context of an obviousness-type double patenting rejection in the Brief. See pages 15-16. Therefore, we select claim 1 from the claims on appeal and determine the propriety of the examiner's obviousness-type double patenting rejection based on this claim alone consistent with 37 CFR § 41.37(c)(vii) (2004). See also *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002).

fundamental question dispositive of an obviousness-type double patenting rejection is whether or not any claim in the application defines merely an obvious variation of an invention claimed in the commonly owned prior patent. *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). An analysis employed in an obviousness-type double patenting is analogous to that used in a 35 U.S.C. § 103 obviousness determination.⁵ *In re Longi*, 759 F.2d 887, 892 n.4, 225 USPQ 645, 648 n.4 (Fed. Cir. 1985).

Here, Fagiolini '567 recites in its claim 1 as follows:

1. Process for purification of smoke containing hydrogen chloride, which comprises the steps of introducing into the smoke a powdery reactive composition comprising at least 99% by weight sodium bicarbonate and at most 1% by weight sodium monocarbonate and exhibiting a particle size distribution defined by an average particle diameter of from 0.020 to 0.030 mm and a particle size slope of from 1 to 3, and subjecting the smoke to dust removal.

Thus, Fagiolini '567 recites every limitation recited in claim 1 of the present application, except for a caking inhibitor "comprising lignite coke and/or a magnesium compound selected from the group consisting of magnesium oxide, magnesium hydroxide, mixtures of magnesium oxides and magnesium hydroxide and magnesium

⁵ In certain circumstances, a so-called "two-way" obviousness analysis is required between the application claims and the commonly owned patent claims (i.e., to sustain an obviousness-type double patenting rejection, both the application claims and the commonly owned patent claims must be obvious from each other). *In re Goodman*, 11 F.3d 1046, 1053, 29 USPQ2d 2010, 2016 (Fed. Cir. 1993). However, the appellants have not argued in the Brief that the "two-way" obviousness analysis applies in the current situation.

hydroxycarbonate, ...wherein said inhibitor is present in amount by weight of greater than 0.5% of the weight of sodium bicarbonate."

To remedy these deficiencies in claim 1 of Fagiolini '567, the examiner relies on the disclosure of Regler. We find that Regler teaches a fine powder mixture useful for removing acidic components, such as hydrogen chloride and sulfur dioxide, in waste gases resulting from the burning of wastes. See pages 1 and 4. We find that Regler teaches forming the powder mixture by adding a basic alkaline earth compound, such as magnesium oxide and/or magnesium hydroxide, as well as a surface active substance, such as brown coal-health furnace coke (lignite coke), to sodium hydrogen carbonate (sodium bicarbonate). See page 4. The fraction of the surface active substance in the mixture is preferably 1 to 10 wt%. See page 5. The fraction of the basic alkaline earth compound employed, such as magnesium oxide and/or magnesium hydroxide, is greater than 0.5 wt%. See page 4, together with page 7. According to Regler (page 4), the use of such mixture provides "substantial advantage" in the removal of the acid components from the waste gases.

Given the advantage of adding the claimed amount of magnesium oxide, magnesium hydroxide and/or lignite coke to sodium bicarbonate to form a powder mixture useful for removing, *inter alia*, hydrogen chloride from burned or smoke waste gases, we concur

with the examiner that one of ordinary skill in the art would have been led to employ the claimed amount of magnesium oxide, magnesium hydroxide and/or lignite coke in the powdery reactive composition of the type recited in Fagiolini '567, motivated by a reasonable expectation of obtaining "substantial advantage".

The appellants do not contest the examiner's determination that the claims of Fagiolini '567, together with the disclosure of Regler, would have rendered the claimed subject matter of the present application obvious. See the Brief, pages 15 and 16. Rather, the appellants rely on the discussion of a Section 101 double patenting rejection drawn to patent and application claims involving "the same invention (same claim scope)" in *Vogel and Studiengesellschaft Kohle mbH v. Northern Petrochemical Co.*, 784 F.2d 351, 355, 228 USPQ 837, 840 (Fed. Cir. 1986) to argue that the examiner has applied a wrong analysis in maintaining the obviousness-type double patenting rejection in question. *Id.* However, continued reading of *Vogel and Studiengesellschaft Kohle mbH* reveals that the analysis employed in the Section 101 double patenting determination is not applicable to the present situation. *Vogel, Braat, Longi and Studiengesellschaft Kohle mbH* all support the use of the analysis employed by the examiner in making an obviousness-type double patenting determination.

In view of the foregoing, we affirm the examiner's decision rejecting Claims 1, 2, 4 through 10, 12 and 13 under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1, 2, 4 through 10, 12 and 13 of Fagiolini '567 in view of Regler.

35 U.S.C. § 103 (Obviousness)⁶

Under 35 U.S.C. § 103, to establish a *prima facie* case of obviousness, there must be some objective teachings or suggestions in the prior art and/or knowledge generally available to a person having ordinary skill in the art that would have led such person to arrive at the claimed subject matter. *See generally in re Oetiker*, 977 F.2d 1443, 1447-48, 245 USPQ2d 1443, 1446-47 (Fed. Cir. 1992) (*Nies, J., concurring*); *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

As evidence of obviousness of the subject matter defined by claims 1, 2, 4 through 10, 12 and 13 under 35 U.S.C. § 103, the examiner relies on the combined disclosures of Fagiolini '835 and Regler. Fagiolini '835, like Fagiolini '567 discussed above,

⁶At pages 5 and 6 of the Supplemental Brief, appellants state that "[c]laim 13 is separately patentable from the remaining claims..." The appellants do not identify any other groups of "claims" which are to be considered separately in the Supplemental Brief. Therefore, we select claims 1 and 13 from the claims on appeal and determine the propriety of the examiner's Section 103 rejection based on these claims consistent with 37 CFR § 41.37(c)(vii) (2004). *See also In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002).

teaches every limitation of claim 1 of the present application, except for a caking inhibitor "comprising lignite coke and/or a magnesium compound selected from the group consisting of magnesium oxide, magnesium hydroxide, mixtures of magnesium oxides and magnesium hydroxide and magnesium hydroxycarbonate, ...wherein said inhibitor is present in amount by weight of greater than 0.5% of the weight of sodium bicarbonate."

To remedy these deficiencies, the examiner relies on the disclosure of Regler. We find that Regler teaches a fine powder mixture useful for removing acidic components, such as hydrogen chloride and sulfur dioxide, in waste gases resulting from the burning of wastes. See pages 1 and 4. We find that Regler teaches forming the powder mixture by adding a basic alkaline earth compound, such as magnesium oxide and/or magnesium hydroxide, as well as a surface active substance, such as brown coal-health furnace coke (lignite coke), to sodium hydrogen carbonate (sodium bicarbonate). See page 4. The fraction of the surface active substance in the mixture is preferably 1 to 10 wt%. See page 5. The fraction of the basic alkaline earth compound, such as magnesium oxide and/or magnesium hydroxide employed is greater than 0.5 wt%. See page 4, together with page 7. According to Regler (page 4), the use of such mixture provides "substantial advantage" in the removal of the acid components from the waste gases.

Given the advantage of adding the claimed amount of magnesium oxide, magnesium hydroxide and/or lignite coke to sodium bicarbonate to form a powder mixture useful for removing, *inter alia*, hydrogen chloride from burned or smoke waste gases, we concur with the examiner that one of ordinary skill in the art would have been led to employ the claimed amount of magnesium oxide, magnesium hydroxide and/or lignite coke described in Regler in the powdery reactive composition of the type recited in Fagiolini '835, motivated by a reasonable expectation of obtaining "substantial advantage". See *Merck & Co. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989); *In re Susi*, 440 F.2d 442, 444, 169 USPQ 423,425 (CCPA 1971). Contrary to the appellants' arguments at pages 11-14 of the Supplemental Brief, Regler allows one of ordinary skill in the art to select the claimed lignite coke and/or magnesium compounds from the very limited number of species disclosed therein (i.e, two of the six specifically named basic alkaline compounds in Regler are embraced by the claimed caking inhibitor or one of the five specifically named surface active substances in Regler is included by the claimed caking inhibitor). See page 4.

The appellants appear to argue that Regler requires employing silica excluded in claim 1 of the present application in the composition of Fagiolini '835. See pages 11-12. We do not agree.

As indicated by the examiner (Answer, page 8), Regler does not require that silica be employed in its powder mixture or the powder mixture of the type described in Fagiolini '835. Rather, in lieu of an optional ingredient, silica gel, Regler teaches employing, *inter alia*, activated coke, such as brown coal-health furnace coke (lignite coke), as a surface active substance. See page 4. Thus, we concur with the examiner that the combined disclosures of Fagiolini '835 and Regler as a whole would have suggested employing lignite coke as a surface active substance in the powder composition of the type described in Fagiolini '835.

The appellants appear to argue that the reasons for employing either lignite coke or magnesium compounds in Regler are different from those set forth by the appellants. See the Supplemental Brief, pages 11-12. We do not agree.

First, it is well known that a surface active substance, by definition, is used for promoting dispersion. In other words, lignite coke employed as a surface active substance is used to prevent any caking (opposite to dispersion) of the powder mixture of the type described in Regler or Fagiolini '835. Thus, Regler, like

the appellants, would have suggested using lignite coke as a caking inhibitor in the powder mixture of the type described in Fagiolini '835.

Second, even were we to agree that Regler employs both lignite coke and/or magnesium compounds, such as magnesium oxide or hydroxide, for the reasons different from that offered by the appellants, our conclusion would not be altered. It is well settled that the prior art teachings need not be combined for the purposes or reasons contemplated by the appellants so long as there is some motivation, or suggestion in the applied prior art references to arrive at the claimed subject matter. *In re Kemps*, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996); *In re Beattie*, 974 F.2d 1309, 1312, 24 USP2d 1040, 1042 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 1304, 190 USPQ 425, 427-28 (CCPA 1976). As indicated *supra*, we determine that the prior art references as a whole provide ample motivation or suggestion to add lignite coke and/or the magnesium compounds in the powder composition of the type described in Fagiolini '835.

The appellants appear to argue that one of ordinary skill in the art would have been led to inject nitrogen compounds and remove nitrogen oxide in the waste gas purification process suggested by

the combined disclosures of Fagiolini '835 and Regler. See the Supplemental Brief, page 11. This argument is unconvincing.

We initially note that Regler does not require nitrogen compounds to be in its powder composition or the powder composition of the type described in Fagiolini '835. We also note that the claimed powder composition, like the powder composition suggested by Fagiolini '835 and Regler, can be used to remove nitrogen oxide. See the specification, page 4. In any event, we note that the appellants, by virtue of using the transitional term "comprising" in the claims on appeal, do not preclude the presence of nitrogen compounds or nitrogen removing properties in their composition. *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) ("As long as one of the monomers in the reaction is propylene, any other monomers may be present, because the term 'comprise' permits the inclusion of other steps, elements, or materials.").

The appellants argue that the limitation of claim 13 is not taught in the prior art references. This argument, however, ignores the specific teachings at page 4 of Fagiolini '835. Fagiolini '835 clearly teaches a powder reactive composition having the claimed particle size slope and distribution. *Id.*

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The appellants appear to rely on a showing of unexpected results to rebut the *prima facie* case established by the examiner. See the Supplemental Brief, page 12. According to the appellants, examples 7 and 8 in the specification evince that the claimed invention imparts unexpected results. *Id.* Our evaluation reveals that the appellants have not carried their burden of showing unexpected results. *In re Freeman*, 474 F.2d 1318, 1324, 177 USPQ 139, 143 (CCPA 1973). In this regard, we note that these examples show that the closest prior art composition, i.e., the sodium bicarbonate composition of Fagiolini '835, imparts unexpected advantages over a composition containing sodium bicarbonate and silica. See the specification, pages 11-13. Also, the appellants have not demonstrated that these examples are commensurate in scope with the claims on appeal. *In re Clemens*, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980). That is, the improvement applicable to a reactive composition consisting essentially of sodium bicarbonate, without additive, is not shown to be applicable to the claimed powder reactive composition containing multifarious additives. Further, the appellants have not demonstrated that the claimed composition is unexpectedly better than that shown in the closest prior art, Fagiolini '835. *In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21

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USPQ2d 1281, 1285 (Fed. Cir. 1991). As indicated *supra*, the appellants do not compare the closest prior art with the claimed invention.

Thus, on this record, we determine that the evidence of obviousness, on balance, outweighs the evidence of nonobviousness proffered by the appellants. Hence, we concur with the examiner that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103. Accordingly, we affirm the examiner's decision rejecting claims 1, 2, 4 through 10, 12 and 13 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Regler and Fagiolini '835.

CONCLUSION

In view of the foregoing, the decision of the examiner is affirmed.

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TIME PERIOD FOR TAKING ANY SUBSEQUENT ACTION

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED



CHUNG K. PAK
Administrative Patent Judge

Terry J. Owens
TERRY J. OWENS

Administrative Patent Judge

Romulo H. Delmendo
ROMULO H. DELMENDO

ROMULO H. DELMENDO
Administrative Patent Judge

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